REMARKS

In the final office action, the Examiner maintained his prior art rejections of the claims. In particular, the Examiner (1) rejected each of the pending claims (i.e., Claims 1-4, 6-18 and 102-133) under 35 U.S.C. 102(a) as being anticipated by WO 99/36760 (the '760 reference), and (2) rejected the claims under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,428,752 issued to Montagu (the Montagu reference). Reconsideration and allowance of the application are requested.

Each of the claims is patentable over the cited '760 and Montagu references. Independent Claim 1, e.g., is directed to a method of washing and drying a pin of a microarray spotting instrument. The method includes the steps of moving the pin to a given position, washing the pin while in the given position, and drying the pin without substantially moving the pin from the given position. The pin is washed in a particular manner, namely by impinging the tip of the pin with at least one stream of wash fluid. This method very effectively washes a variety of types of pins, but is especially useful for washing pins having slot reservoirs at their tips. Such pins hold target material at their tips for multi-spot dispensing.

The '760 and Montagu references disclose spotting instruments having a pin and supply ring mechanism. As shown in Fig. 7 of the Montagu reference and Fig. 9G of the '760 reference, a pin 12D is surrounded by a supply ring 14' when washed. An annular nozzle 200 transmits fluid for washing the pin and the supply ring.

The Examiner states that Claim 1 is anticipated because the references teach that fluid is impinged against deposit pins. In particular, the Examiner states that column 4, lines 32-44 of the Montagu reference teaches that "the circular nozzle is constructed to discharge a conical flow of fluid ... high pressured liquid ... against (impinging) a deposit device (being a pin or pin-like structure)."

Montagu discloses directing fluid against the deposit device as indicated by the Examiner. However, the reference does not anticipate Claim 1 even if it can be said to disclose impinging fluid against the pin of the deposit device. Claim 1 specifies a particular manner of washing a pin, namely washing the pin by impinging the tip of the pin with at least one stream of wash fluid. Montagu, by contrast, only discloses directing fluid along the length of the device toward the tip of the pin; it does not disclose or in any way suggest directly impinging wash fluid against the tip of the device. For example, the '752 reference states in col. 2, lines 34-39, that there is "a cleaning station [that] comprises a fluid jet arranged to blow down along the length of the deposit device toward its drop depositing end." Thus, rather than impinging the tip of the pin as specified in Claim 1, the cited references only disclose flowing fluid along the length of the device toward the tip. There is simply no impingement or striking of the tip of the pin by wash fluid in Montagu.

Furthermore, impinging the pin tip with wash fluid is not even suggested by the references because the presence of the supply ring as shown in the above mentioned figures would appear to prevent any impingement of the pin tip with fluid from the nozzle. In other words, the location of the supply ring 14' relative to the nozzle would apparently block fluid from the nozzle 200 from impinging the tip of the pin. Claim 1 and dependent Claims 2-4 and 6-18 are thus patentable over the cited references.

Claim 8 depends on Claim 1 and further specifies that multiple streams of wash fluid are directed at the pin tip in a swirling pattern. This also is neither disclosed, nor suggested by the cited '760 and Montagu references. The Examiner states that this step is disclosed by the references teaching of "a circular nozzle ... constructed to discharge a conical flow of fluid." This rejection is respectfully traversed. The references disclose an annular nozzle 200 that, as the Examiner states, discharges a conical flow of fluid. This single conical flow, however, does not comprise either (1) multiple streams of wash fluid, or (2) fluid flow having a swirling pattern. For purposes of illustration, reference is made to Fig. 11 of the present application, e.g., which discloses one possible non-

limiting structure for directing multiple streams of wash fluid in a swirling pattern. As described in the specification on page 14, lines 11-16, the structure includes wash ports 130' that are oriented in a slightly off-center direction, i.e., the wash fluid ports 130' are angled to direct wash fluid in a direction away from the tube center to thus create a swirling wash pattern. The annular nozzle of the cited '760 and Montagu references, by contrast, only creates a conical shaped flow directed to a central point, not a swirling wash pattern.

Claim 16, which depends on Claim 15, further specifies that the step of washing comprises at least drying said pin between applications of said pulsed streams of wash fluid. For example, pulsed steams of wash fluid are applied to the pin, followed by drying the pin, followed by a further application of pulsed streams of wash fluid. This is also neither disclosed, nor suggested by the cited '760 and Montagu references.

Claims 18 and Claim 102 generally describe drying a pin by flowing air past the pin with the air being of a lower humidity than air in an enclosure containing the spotting instrument. For purposes of clarification, these claims have been amended to indicate that the air is introduced into the enclosure from outside the enclosure. As described in the specification, e.g., on page 19, the environment inside the microarray spotter enclosure generally has a controlled humidity. The vacuum drying process is made quicker and more effective by using air for drying that is introduced into the enclosure and is of lower humidity than air within the enclosure. The cited references only teach that air used for drying pins can be heated. There is no teaching or suggestion that the air used for drying be of a lower humidity and be introduced into an enclosure containing the spotting instrument. Claims 18 and 102 are therefore patentable over the cited '760 and Montagu references.

Independent claim 118 is directed to a method of washing and drying a pin of a microarray spotting instrument. The method includes the steps of washing the pin with a wash fluid while applying a vacuum to remove wash fluid previously applied to said

pin. The step of drying includes applying a vacuum to draw air past the pin. The claimed method is neither disclosed, nor suggested by the cited references. The Examiner apparently contends that these steps are disclosed by use of a vacuum pump disclosed in the references (page 44, lines 1-18 of the '730 reference and col. 10, lines 18-20 of the Montagu patent). However, the references only disclose that a trap is provided for collecting fluid from the nozzle, and that "the trap may be associated with a vacuum pump." Thus, the references teach that fluid is collected in the trap, and presumably can thereafter be removed from the trap using the vacuum pump. The references do not disclose or suggest the particular claimed step of drying by applying a vacuum to draw air past the pin. The cited '760 and Montagu references, by contrast, only teach discharging compressed air from the nozzle for drying the pin. Claim 118 and dependent Claims 119-132 are therefore patentable over the references.

Claims 19-101, which were previously withdrawn, have been canceled to place this application in condition for allowance.

Claims 1-4, 6-18, and 102-133 are pending in the present application. As each of the claims is now believed to be condition for allowance, issuance of a notice of allowance is requested.

Respectfully submitted,

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